

Appl. No: 10/030,735
Amdt. dated June 24, 2005
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group 1644

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A peptide ~~comprising~~ consisting of the sequence R_1 - X_1 -V-R- X_4 - R_2 or partial or full retro-inverso sequences thereof, wherein X_1 ~~is selected from the group consisting of N, Q, D and S;~~ and X_4 ~~is selected from the group consisting of L and F~~ the X_1 -V-R- X_4 sequence is selected from the group consisting of N-V-R-L (SEQ ID NO:57), N-V-R-F (SEQ ID NO: 51), O-V-R-L (SEQ ID NO: 80), O-V-R-F (SEQ ID NO:53), and D-V-R-L (SEQ ID NO:102); R_1 is a hydrogen or ~~a peptide of from~~ 1 to 6 amino acids, an acyl or an aryl group; and R_2 is ~~a peptide of from~~ 1 to 3 amino acids, a hydroxide or an amide, provided that the peptide binds $\alpha 3\beta 1$ integrin and does not comprise the sequence FQGVLQNVRVFV (SEQ ID NO:6) ~~or FRGCVRNLRLSR (SEQ ID NO:12) or DVRF (SEQ ID NO:54).~~

2. (Currently amended) The peptide of claim 1 ~~containing from about 4 amino acids to about~~, wherein the peptide contains the X_1 -V-R- X_4 sequence and is up to 12 amino acids in length.

3. (Currently amended) The peptide of claim 1 wherein R_1 is a peptide ~~comprising~~ consisting of the sequence selected from the group consisting of FQGVLQ (SEQ ID NO:13), FAGVLQ (SEQ ID NO:14), FQGVAQ (SEQ ID NO:15), FQGVLA (SEQ ID NO:16), and FQGVLN (SEQ ID NO:17).

4. (Currently amended) ~~The peptide of claim 1~~ A peptide that binds $\alpha 3\beta 1$ integrin, wherein said peptide ~~comprises at least one~~ consists of a sequence selected from the group consisting of FQGVLLQVRFVF (SEQ ID NO:20), FQGVLSVRFVF (SEQ ID NO:21), acQGVLLQNVRF (SEQ ID NO:22), FQGVLLNVRFVF (SEQ ID NO:24), AQGVLLQNVRFVF

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(SEQ ID NO:25), FAGVLQNVRFVF (SEQ ID NO:26), FQGVAQNVRFVF (SEQ ID NO:27), FQGVLANVRFVF (SEQ ID NO:29), FQGVLANVRFV (SEQ ID NO:30), QGVLANVRFVF (SEQ ID NO:31), and FQGVLANVRF (SEQ ID NO:32).

5. (Currently amended) The peptide of claim 1 wherein ~~X₁-X₂-X₃-X₄~~ the X₁-V-R-X₄ sequence is selected from the group consisting of NVRF (SEQ ID NO:51), ~~SVRF~~ (SEQ ID NO:52), and QVRF (SEQ ID NO:53).

6. (Cancel)

7. (Currently amended) The peptide of claim 1 that ~~comprises~~ contains at least one D-amino acid.

8. (Currently amended) A retro-inverso synthetic peptide comprising consisting of the amino acids acid sequence, from C-terminal (left) to N-terminal (right): ri- R'₁-X'₁-X'₂-X'₃-X'₄-R'₂, wherein ri denotes a retro-inverso peptide sequence and all amino acids are D amino acids; X'₁ is selected from the group consisting of N, Q, D and S; X'₂ is selected from the group consisting of V, I and L; X'₃ is selected from the group consisting of R and K; and X'₄ is selected from the group consisting of V, I, L and F; the X'₁-V-R-X'₄ sequence is selected from the group consisting of N-V-R-L (SEQ ID NO:57), N-V-R-F (SEQ ID NO: 51), Q-V-R-L (SEQ ID NO: 80), Q-V-R-F (SEQ ID NO:53), and D-V-R-L (SEQ ID NO:102); R'₁ is a hydrogen or a peptide of from 1 to 6 amino acids, a hydroxide or an amide; and R'₂ is a peptide of from 1 to 3 amino acids, an acyl or an aryl group.

9. (Currently amended) The peptide of claim 8 ~~containing from about 4 amino acids to about~~, wherein the peptide contains the X'₁-V-R-X'₄ sequence and is up to 12 amino acids in length.

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10. (Currently amended) A peptide ~~comprising~~ consisting of the sequence FQGV LQNVR FVF (SEQ ID NO:6) wherein every amino acid in said sequence is a D-amino acid.

11-12. (Canceled)

13. (Currently amended) A pharmaceutical composition comprising a peptide according to claim 1 and a pharmaceutically acceptable carrier.

14. (Currently amended) A ~~sterile~~ composition comprising a peptide according to claim 1 ~~[[and]]~~ in a sterile aqueous solution.

15-19. (Canceled)

20. (Currently amended) An in vitro method of inhibiting adhesion of a cell expressing $\alpha\beta 1$ integrin to an extracellular matrix comprising contacting said cell with a peptide according to claim 1.

21. (Original) The method of claim 20 wherein the extracellular matrix comprises TSP1 or laminins.

22. (Cancel)

23. (Original) The method of claim 20 wherein said cell comprises an epithelial or an endothelial cell.

24. (Original) The method of claim 20 wherein said cell is a tumor cell.

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25. (Original) The method of claim 20 wherein said cell is a breast carcinoma cell or a small cell lung carcinoma.

26. (Currently amended) An *in vitro* method of inhibiting $\alpha\beta 1$ integrin-mediated cell motility, comprising contacting a cell with a peptide according to claim 1.

27. (Canceled)

28. (Original) The method of claim 26 wherein the cell is an epithelial cell, an endothelial cell or a malignant cell.

29. (Currently amended) An *in vitro* method of inhibiting proliferation of endothelial cells, comprising contacting said cells with a peptide according to claim 1.

30. (Currently amended) An *in vitro* method of inhibiting proliferation of small cell lung carcinoma cells, comprising contacting said cells with a peptide according to claim 2.

31-45. (Canceled)

46. (Currently amended) A peptide ~~comprising~~ consisting of the sequence R_1 -D-V-R-F- R_2 , or partial or full retro-inverso sequences thereof, wherein D-V-R-F is SEQ ID NO:54; R_1 is a hydrogen or a ~~peptide of from~~ 1 to 6 amino acids, an acyl or an aryl group; and R_2 is a ~~peptide of~~ 2 or 3 amino acids, a hydroxide or an amide, provided that the peptide binds $\alpha 3 \beta 1$ integrin.

47. (Currently amended) The peptide according to claim 46 ~~comprising~~ consisting of the sequence FQGVLQDVRFVF (SEQ ID NO:19).

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48. (New) The peptide of claim 46, wherein the peptide contains the sequence DVRF (SEQ ID NO:54) and is up to 12 amino acids in length.

49. (New) The peptide of claim 46 wherein R_1 is a peptide consisting of the sequence selected from the group consisting of FQGVLP (SEQ ID NO:13), FAGVLQ (SEQ ID NO:14), FQGVAQ (SEQ ID NO:15), FQGVLA (SEQ ID NO:16), and FQGVLN (SEQ ID NO:17).

50. (New) The peptide of claim 46 that contains at least one D-amino acid.

51. (New) A composition comprising a peptide according to claim 46 and a pharmaceutically acceptable carrier.

52. (New) A composition comprising a peptide according to claim 46 in a sterile aqueous solution.

53. (New) A retro-inverso synthetic peptide consisting of the amino acid sequence, from C-terminal (left) to N-terminal (right): $ri-R'_1-D-V-R-F-R'_2$, wherein ri denotes a retro-inverso peptide sequence and all amino acids are D amino acids and D-V-R-F is SEQ ID NO:54; R'_1 is a hydrogen or from 1 to 6 amino acids, a hydroxide or an amide; and R'_2 is 2 or 3 amino acids, a hydroxide or an amide, provided that the peptide binds $\alpha 3\beta 1$ integrin.

54. (New) The peptide of claim 46, wherein the peptide contains the sequence DVRF (SEQ ID NO:54) and is up to 12 amino acids in length.